

## Abstract

A garbage collection (GC) system reducing CPU time required for GC without stopping all Application Program threads for an excessive amount of time. The GC system frees memory areas  
5 corresponding to objects that are no longer required in an execution procedure of an object-oriented program including a plurality of threads. The GC system includes a selection unit operable to select the threads, an examination unit operable to examine the selected thread by (i) stopping execution of the thread, (ii) finding an object  
10 that is accessible from the thread via an object pointer, (iii) managing the found object as a non-freeing target, and (iv) resuming execution of the thread. The GC system also includes a detection unit operable to manage an object identified by the processing target object pointer, as a non-freeing target, and a freeing unit operable to free memory  
15 areas corresponding to objects other than the objects that are non-freeing targets.